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<p>(21) International Application Number: PCT/SE92/00756 (22) International Filing Date: 3 November 1992 (03.11.92) (30) Priority data: 9103250-8 5 November 1991 (05.11.91) SE (71)(72) Applicants and Inventors: NAVJORD, Björn [SE/SE]; Kornbodsgatan 111, S-724 81 Västerås (SE). ÖKVIST, Gunnar [SE/SE]; Kattherdsvägen 23, S-730 50 Skultuna (SE). (74) Agent: BERGGREN, Björn; Långrevsgatan 1, S-723 49 Västerås (SE).</p>		<p>(81) Designated States: CA, FI, JP, NO, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE). Published <i>With international search report.</i> <i>With amended claims.</i> <i>In English translation (filed in Swedish).</i></p>
<p>(54) Title: METHOD OF SUPPORTING A ROOF AND THE LIKE</p> <div data-bbox="321 1268 1393 1633"><p>The diagram illustrates a method for supporting a roof or floor. It shows two horizontal strips, labeled 1 and 2, which are joined at a central point. Strip 1 is shown with a dashed line indicating its internal structure, and strip 2 is shown with a solid line. The strips are labeled with circled numbers 1, 2, and 3, and letters A and B. Arrows indicate the direction of movement or force applied to the strips.</p></div> <p>(57) Abstract</p> <p>The present invention relates to a method of adhering, splicing or applying roof, floor or wall material. The method is characterised in that strips, rolls or sheets of or containing metallic layer material (1) are attached to a layer of bitumen, asphalt or tar-like or polymer material (2), or coated or prepared with such material. The strips, rolls, etc. (1-2, 5, 6) of composite material thus produced are placed on a roof or floor, etc. and heated inductively or resistively so that adhesion/splicing is achieved.</p>		

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METHOD OF SUPPORTING A ROOF AND THE LIKE.

Technical field

The present invention relates to a method of adhering, splicing and/or applying roof, floor or wall material.

Background Art

When laying roofing material, the rolled-out material is spliced and/or adhered so that when the overlapping rolls are spliced or adhered they are heated to melting or softening point by means of an open flame, such as from a blow-lamp or an LPG burner, or by means of hot air from a burner where open flames also occur. In all cases there is a considerable risk of fire. The same applies when an older roofing felt is to be covered with new roofing felt or some other similar material.

Similar problems may also arise when applying floor or wall materials where open flames are used either directly or indirectly for the heating process.

Summary of the Invention

The method according to the invention offers a solution to these and other associated problems and is characterised in that strips, rolls or sheets of or containing metallic layer material 1 such as aluminium (Al), copper (Cu), iron (Fe), brass or the like are attached to a layer of bitumen, asphalt or other tar-like or polymer products, or are coated or prepared with such material, and that rolls of composite material or roofing material are applied side by side and that strips are applied between, under or over the adjacent edges, i.e. a completely metallic layer of the metallic material, or that coated rolls of composite material with such layers are applied mutually overlapping, said strips or overlapping portions being thereafter heated inductively or resistively and adhesion/splicing being achieved.

This method entails considerably less risk of fire and a quick and efficient method of applying roofing material or the equivalent on walls and floors. The metallic strips also provide efficient heating if the heat source is correctly set.

The invention can advantageously be utilized for full adhesion, i.e. the full width of the roll is heated, and previously-laid roofing material can be covered with new material according to the invention, or the invention may be used just for adhesion/splicing.

The inductive or resistive heating can be performed using conventional means that can be rolled or pushed along the joints.

Drawings

The method according to the invention is exemplified in more detail in the accompanying drawings in which Figure 1 shows overlap application and Figures 2 and 3 application with splicing strips.

Description of the Drawings

Figure 1, describing full adhesion, shows strips or rolls composed of a metallic layer 1 (Al, Cu, Fe, brass or the like) and a layer 2 of bitumen, asphalt or tar-like or polymer products, arranged to overlap when the roof, wall or floor is applied. The roll length A must be heated first, followed by the roll length B (or vice versa), to softening or melting point so that splicing/adhesion can occur.

The strips or rolls, composed of layers 1 and 2, may also be designed so that the metal layer 1, possibly a foil, is prepared or coated with bitumen, asphalt or the like as above, and heating is performed by the metallic layer 1 being heated when the inductive/resistive heater passes the joint. Figure 2 shows an embodiment with an upper splicing strip 4 between two composite layers 5, 6, and an outer/lower strip 4. Figure 3 shows such a splicing strip 4 placed below (or above) these composite layers. Such splicing strips 4 can also be used in conjunction with conventional roofing material (or the equivalent for floors or walls) and the composite layers (1-2) may also be placed in this way on top of either newly-laid or old roofing material.

The metallic layers 1 may be in the form of foil, unperforated and possibly embossed. Heating is of course performed at the location of the joint. The intermediate layer 4 between two composite layers 5, 6 may possibly be in the form of foil with a thin coating of bitumen, etc.

Frequencies of 4-500 kHz are preferably used for the inductive heater, but both lower and higher frequencies are feasible. The method according to the invention entails a considerably simplified method of laying roofs, etc. as well as a great improvement over methods used hitherto from the environmental aspect.

The invention can be varied in many ways within the scope of the following claims.

Claims:

1. A method of adhering, splicing or applying roof, floor or wall material, **characterised** in that strips, rolls or sheets of or containing metallic layer material 1 such as Al, Cu, Fe, brass or the like are attached to a layer of bitumen, asphalt or other tar-like or polymer products, or are coated or prepared with such material, and that rolls of composite material or roofing material are applied side by side and that strips are applied between, under or over the adjacent edges, i.e. a completely metallic layer of the metallic material (4), or that coated rolls of composite material with such layers (1) are applied mutually overlapping, said strips (4) or overlapping portions being thereafter heated inductively or resistively and adhesion/splicing being achieved.

2. A method as claimed in claim 1, **characterised** in that rolled-out layers of composite type are placed on roofing material (or the equivalent for floors and walls) of conventional type, newly applied or old, and heat thereafter applied thereby permanently adhering the new material to the layer below.

3. A method as claimed in claim 1 or 2, **characterised** in that the metallic material is applied in the form of foil, unperforated and possibly embossed.

4. A method as claimed in any of the preceding claims, **characterised** in that heating is performed using one or more heaters, inductive or resistive, that are rolled or moved in some other manner along the future joints.

5. A method as claimed in claim 3, **characterised** in that the metallic material in the form of foil, unperforated and possibly embossed, is applied adjacent to strips, rolls, etc. of or containing bitumen, asphalt or other tar-like or polymer products.

AMENDED CLAIMS

[received by the International Bureau on 16 March 1993 (16.03.93);
original claims 1-5 replaced by amended claims 1-5 (1 page)]

1. A method of adhering, splicing or applying roof, floor or wall material, characterised in that strips, rolls or sheets of or containing unperforated metallic layer material 1 such as Al, Cu, Fe, brass or the like are attached to a layer of bitumen, asphalt or other tar-like or polymer products, or are coated or prepared with such unperforated material, and that rolls of composite material or roofing material are applied side by side and that strips are applied between, under or over the adjacent edges, i.e. a completely metallic, unperforated layer of the metallic material (4), or that coated rolls of composite material with such layers (1) are applied mutually overlapping, said strips (4) or overlapping portions being thereafter heated inductively or resistively and adhesion/splicing being achieved.

2. A method as claimed in claim 1, characterised in that rolled-out layers of composite type are placed on roofing material (or the equivalent for floors and walls) of conventional type, newly applied or old, and heat thereafter applied thereby permanently adhering the new material to the layer below.

3. A method as claimed in claim 1 or 2, characterised in that the metallic material is applied in the form of foil, unperforated and possibly embossed.

4. A method as claimed in any of the preceding claims, characterised in that heating is performed using one or more heaters, inductive or resistive, that are rolled or moved in some other manner along the future joints.

5. A method as claimed in claim 3, characterised in that the metallic material in the form of foil, unperforated and possibly embossed, is applied adjacent to strips, rolls, etc. of or containing bitumen, asphalt or other tar-like or polymer products.

Fig. 1

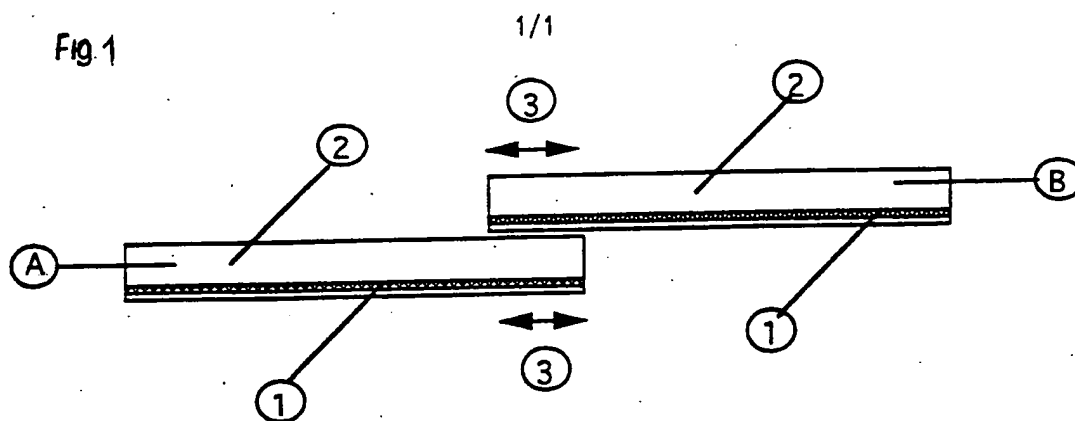


Fig 2

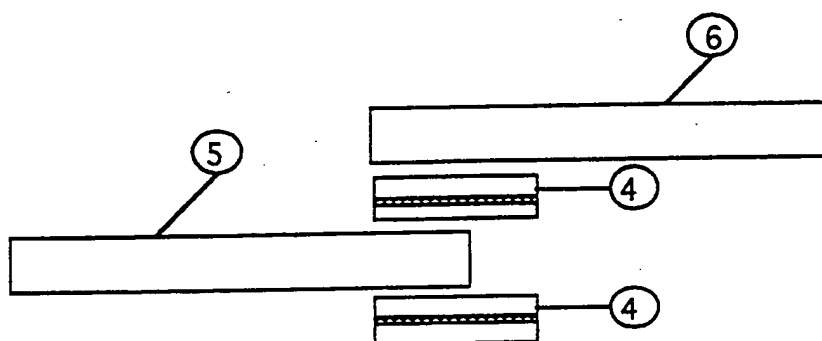
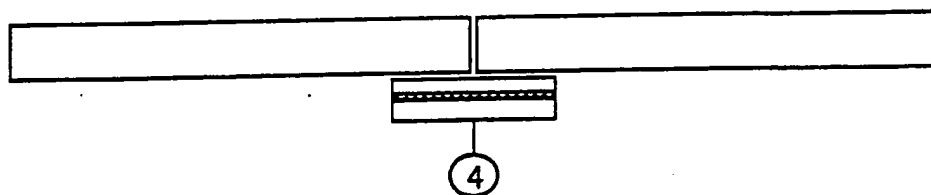


Fig 3



INTERNATIONAL SEARCH REPORT

International Application No PCT/SE 92/00756

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁵		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC5: E04D 5/02		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC5	E04B; E04D; B29C	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in Fields Searched ⁸		
SE,DK,FI,NO classes as above		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category [*]	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	EP, A2, 0314548 (GERLAND ETANCHEITE S.A.) 10 May 1989, see column 5, line 58 - line 64; figure 1 --	1,4
X	SE, -, 117696 (V.S.H.E. ELMGREN ET AL) 26 November 1946, see claim 1 figure 1, detail 2 --	1
X	FR, A1, 2490057 (SOCIETE FRANCAISE D'APPLICATION DES MICRO-ONDES) 12 March 1982, see page 3, line 9 - line 11 figure 2, detail 3 --	1
X	GB, A, 1573163 (WEBER ET BROUTIN) 13 August 1980, see figure 4a; claim 5 --	1-3,5
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>[*] Special categories of cited documents:¹⁰</p> <p>^A document defining the general state of the art which is not considered to be of particular relevance</p> <p>^E earlier document but published on or after the international filing date</p> <p>^L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>^O document referring to an oral disclosure, use, exhibition or other means</p> <p>^P document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>^T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>^X document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>^Y document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>^A document member of the same patent family</p> </div> </div>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
1st February 1993	05 -02- 1993	
International Searching Authority	Signature of Authorized Officer	
SWEDISH PATENT OFFICE	Vilho Juvonen	

Form PCT/ISA/210 (extra sheet) (January 1985)

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.PCT/SE 92/00756**

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the Swedish Patent Office EDP file on 08/01/93
The Swedish Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A2- 0314548	89-05-10	FR-A-B- 2622144	89-04-28
SE--- 117696	46-11-26	NONE	
FR-A1- 2490057	82-03-12	NONE	
GB-A- 1573163	80-08-13	BE-A- 853727	77-08-16
		CA-A- 1110961	81-10-20
		CH-A- 622279	81-03-31
		DE-A- 2651756	77-11-03
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		LU-A- 77163	77-08-12
		NL-A- 7704386	77-10-25
		US-A- 4123305	78-10-31
SE-A- 9002947	92-03-18	NONE	
CA-A- 1235872	88-05-03	EP-A- 0278768	88-08-17
		JP-A- 1210330	89-08-23
US-A- 4141187	79-02-27	CA-A- 1074076	80-03-25